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Dated 27 May 2004

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# Request for grant of a patent

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The Patent Office

Cardiff Road
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1. Your reference HJL/8412

2. Patent application number *(The Patent Office will fill in this part)* 12 APR 2003 0308530.5

3. Full name, address and postcode of the or of each applicant *(underline all surnames)*

Bastione Limited
The Tallet, North Road, Timsbury,
Bath, BA22 0JJ.

Patents ADP number *(if you know it)* 08610305001

If the applicant is a corporate body, give the country/state of its incorporation United Kingdom

4. Title of the invention

Security Arrangement

5. Name of your agent *(if you have one)*

"Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*

Swindell & Pearson

48 Friar Gate,
Derby DE1 1GY

Patents ADP number *(if you know it)* 00001578001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and *(if you know it)* the or each application number

| Country | Priority application number *(if you know it)* | Date of filing *(day / month / year)* |
|---|---|---|

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

| Number of earlier application | Date of filing *(day / month / year)* |
|---|---|

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? *(Answer 'Yes' if:*

*a) any applicant named in part 3 is not an inventor, or*
*b) there is an inventor who is not named as an applicant, or*
*c) any named applicant is a corporate body.*
*See note (d))*

Yes

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| Continuation sheets of this form | |
| Description | 8 CF |
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10. If you are also filing any of the following, state how many against each item.

| | |
|---|---|
| Priority documents | |
| Translations of priority documents | |
| Statement of inventorship and right to grant of a patent *(Patents Form 7/77)* | |
| Request for preliminary examination and search *(Patents Form 9/77)* | |
| Request for substantive examination *(Patents Form 10/77)* | |
| Any other documents *(please specify)* | |

11. I/We request the grant of a patent on the basis of this application.

Signature Swindell & Pearson Date 11/4/2003

Swindell & Pearson

12. Name and daytime telephone number of person to contact in the United Kingdom H.J. Lock - 01332 367051

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# Security Arrangement

This invention relates to security arrangements. More particularly, but not exclusively, this invention relates to multi-coloured security arrangements, for example labels and tapes.

There are many circumstances when it is desired to ensure that documents have not been tampered with. Known security products for this purpose comprise a carrier paper which is coated with a suitable monochrome coloured coating layer. The monochrome coating has regions of high and low adherence to the document, so that if it is attempted to remove the regions of high adherence which remain behind on the document. These regions of high adherence can be in the form of letters spelling out, for example, the words VOID or INVALID to provide evidence of tampering.

According to one aspect of this invention there is provided a security arrangement for application to a support, the security arrangement comprising a carrier, a first layer of a first material on the carrier, the first layer defining an affixing region substantially devoid of said first material, and a second layer of a second material on the first layer, wherein an affixing portion of the second layer adheres to the carrier via said affixing region.

Preferably, the carrier comprises a substrate.

The first layer may be less adherable to the carrier than the second layer. When the substrate is removed from the carrier, the affixing portion of the second layer may remain adhered to the carrier.

Preferably the first layer is substantially inadherable to the carrier. The second layer may have a degree of adherability to the carrier which is greater than its degree of adherability to the support.

The carrier may be formed of a film material. The carrier may comprise a plastics material. The plastics material may comprise a polyester. The

carrier may of course comprise any other suitable polymeric material, or paper. The carrier may be formed of a light transmitting material, and may be transparent or translucent.

The carrier may be a film of a material having a thickness of less than 0.2mm, preferably less than 100 microns more preferably in the range of substantially 25 microns to substantially 50 microns.

The first layer may be formed of a light transmissive material, and may be transparent or translucent. Preferably, the first layer is clear. Said first layer may comprise a non-filmic or non-affixing material. A non-filmic or a non-affixing material may be described as a material which does not adhere to the carrier, which may be a film of a polymeric material, for example a polyester film. The first layer may be formed of a material which comprises a non-affixing polymer coating.

A suitable first material for use as the first layer may be a non-affixing ink, which may comprise a UV rotary letter press ink, preferably comprising a short chain polymeric substance, which may have a three-dimensional lattice structure. The first material may comprise a polymeric coating with a short chain molecular structure. In some embodiments, the first material may be pigmented.

The affixing region of the first layer may have the shape of a letter. In the preferred embodiment, the first layer may comprise a plurality of said affixing regions. Different affixing regions may have the shape of different letters, whereby words can be formed from said letters, such as VOID, OPENED, INVALID or the like. The words preferably provide evidence of the arrangement having been tampered with. Thus, in the preferred embodiment, when the carrier is removed from the support, the affixing portions of the second material remaining adhered to the carrier form words, for example, VOID, OPENED, INVALID or the like, which provide evidence of tampering with the arrangement. Corresponding gaps maybe formed from said affixing portion in the first and said second layers remaining on the support. Thus, in

one embodiment, after the carrier has been removed, the support has thereon, the first and second layers, having gaps which spell out the words, for example as indicated above.

Preferably, the first layer is substantially colourless.

The second layer, may be formed of a pigmented material. Preferably, the second layer is formed of a plurality of pigmented materials. Said plurality of pigmented materials may comprise a plurality of colours. The second layer may be provided on the first layer in the form of desired patterns, words and/or colours.

The second layer may comprise an affixing material. An affixing material may be described as a material which can adhere to the substrate which may be a film of a polymeric material, for example a polyester film.

The second layer is conveniently formed of a plurality of pigmented polymer coatings, to allow printed matter in a desired pattern to be applied to the first layer as the second layer.

In one embodiment, the second material may comprise a UV rotary letter press ink. The second material preferably comprises a long chain polymeric substance, which may have a two-dimensional structure. The second material may comprise a pigmented polymeric coating with a long chain polymeric structure.

The security arrangement may further comprise a release layer on the second layer. The release layer may comprise a liner, which may include an adhesive resistant material, for example a non-stick material, such as a silica compound. The release layer may further include an adhesive, which is preferably coated thereon or and can be transferred to the second layer.

A sealing layer may be provided between the second layer and the adhesive to prevent movement of the adhesive into the second layer. The sealing layer may be a clear polymer for example a matt clear polymer.

The security arrangement may further include a removal layer to allow the carrier to be removed from the support. The removal layer may be provided on a removal region of the second layer, for example an edge or end region of the second layer. The removal layer may comprise a silica compound, for example a silica varnish.

The second layer may comprise a confuse pattern region to render unreadable any matter printed on the substrate. The confuse pattern region may comprise an alpha-numeric pattern. The confuse pattern region may comprise other types of characters, random marking or shading.

An identification layer may be provided for identification purposes.

The identification layer may include activatable material which may define an identification pattern. The activatable material may be material activatable by ultra-violet light.

An embodiment of the invention will now be described by way of example only, with reference to the accompanying drawings, in which

Fig. 1 is an exploded view of the layers of the security arrangement;

Fig. 2 is a top plan view of a security arrangement shown in Fig. 1; and

Fig. 3 is a top plan view of the security arrangement of Fig. 1 in which the substrate has been removed.

Referring to the drawings, a security arrangement in the form of a security label 10 is shown in Fig. 1 in which the layers are shown separated from each other for clarity. The security label 10 comprises a carrier in the

form of a substrate formed of a film 12 of a polyester material which is substantially 50 microns thick.

A first layer 14 of a non-affixing material such as a polymeric coating is printed onto the film 12 by suitable printing means, by example by narrow web rotary letter press UV printing. The first layer 14 is provided with affixing regions 16 which are apertures in the first layer 14. The affixing regions 16 are shaped in the form of letters to spell appropriate words, e.g. VOID and OPENED, or, in the example shown COLOURVOID. The affixing regions 16 are substantially devoid of the non-affixing material. The non-affixing material is a polymer coating which will not adhere to the substrate 12, and may be a UV rotary letter press ink having short chain polymeric molecules, providing a latticed molecular structure.

A second layer 18 formed of an affixing material comprising a plurality of affixing pigmented polymer coatings applied onto the first layer 14.

An affixing pigmented polymer coating is a polymer coating which will adhere to film material such as the substrate 12, and may be a UV rotary letter press ink containing two-dimensional long chain polymeric molecules.

The second layer 18 is applied onto the first layer 14 using the same process as the application of the non-affixing material onto the substrate 12, and may have a patterned region 19. The patterned region 19 may be any desired pattern, for example in the form of a picture or the like, formed of any desired colours using appropriately coloured pigmented polymeric coatings as would be appreciated by the person skilled in the art.

The second layer 18 adheres to the film 12 via the affixing regions 16 in the first layer 14.

An example of a suitable pattern is shown in Fig. 2, in which, the patterned region 19 comprises a decorative coloured pattern. Such labels as

shown in Fig. 2 could be used, for example, when it is desired to provide tamper evident protection of boxes cartons, item closures, or the like.

In another embodiment, for example, for use in identity cards or passports the second layer could have a central region formed of a clear or colourless transparent ink with a decorative pattern around the edge. In this embodiment, the central region would be arranged over a photograph of the individual to be identified in the identity card or passport.

In a further embodiment, for example, as a security label used with documents to convey confidential information, the second layer 18 could comprise a central region formed of a confuse pattern and an edge region formed of a desired coloured pattern. In this embodiment, the confuse pattern is provided to obscure confidential information printed onto the film 12.

Adjacent the patterned region 19, the second layer 18 is also provided with an instruction region 24 including the words "peel back" to instruct the user as to the part of the label 10 from where to remove the substrate 12 as will be explained below.

A removal layer 26 may be applied over the instruction region 24. To prevent adhesive from being applied in said region to the film 12. The removal layer 26 can be a silicon varnish to which adhesive does not stick.

A sealing layer 28 is applied onto the second layer 18 to prevent adhesive from diffusing into the second layer 18. The sealing layer 18 may be a suitable ink seal.

Finally, a release layer 30 is applied to the label 10 over the second layer 18, with the sealing layer 28 arranged between the release layer 30 and the second layer 18. The release layer 30 comprises a backing sheet 32 and an adhesive 34 applied to one face of the backing sheet 32.

The sealing layer 28 is provided, as explained above, to prevent the adhesive on the backing layer diffusing into the second layer 18. Thus allowing the release layer 30 to be removed from the rest of the label 10. The backing sheet 32 may be formed of a suitable silica liner material, so that the adhesive 34 has a greater degree of adherence to the second layer 18 and/or the sealing layer 28 so that the adhesive 34 remains on the second layer 18 and/or the sealing layer 28. This enables the label 10, after the backing sheet 32 has been removed, to be stuck onto a suitable support such as a paper or other suitable article, such as a box or a carton 50.

Referring to Fig. 4, a plurality of the labels 10 as described above are applied to a single release layer 30 which may be wound onto a reel 52 for transport. When it is desired to apply any of the labels to a suitable support, for example, the box or carton 50, one of the labels 10 is removed from the release layer 30 and applied to the box or carton 50. The adhesive 34 remains adhered to the label 10 enabling the label 10 to adhere to the box or carton 50. In use, the label 10 is applied across a gap 54 in the lid of the box or carton 50.

In use, with the embodiment shown in Figs. 2 and 3, the person in receipt of the box or carton 50 can immediately tell whether the box or carton 50 has been tampered with. Anybody attempting to open the box or carton 50 would need to remove the label 10 applied thereto. This can only be done by peeling away the substrate 12. When this happens, portions 36 of the second layer 18 which are adhered to the substrate 12 via the keying regions 16 remain so adhered, and are pulled away with the substrate as it is 12 is peeled from the rest of the label 10, adhered to the box or carton 50. The substrate 12, as shown in Fig. 3 carries with it the portions 36 of the second layer as can be seen.

As can be seen from Fig. 3, the word COLOURVOID becomes immediately visible on the substrate 12 and as blank spaces 42 in the remainder of the label 10 on the box or carton 50. Thus, if the person receiving the box or carton 50 notices the word COLOURVOID, he or she will

immediately realise that the box or carton 50 has been tampered with and should report it immediately to the company concerned.

There is thus described a security arrangement 10 which has the advantage that it provides a simple method of protecting information and providing evidence of tampering. It can be used in a variety of applications, for example, in addition to the use in providing tamper evident protection of boxes or cartons described above, it can be used in passports for attaching a photograph to the passport by providing a clear central region over the photograph. In addition, it can also be used on letters or other documents to protect confidential information.

Various modifications can be made without departing from the scope of the invention, for example, the sealing layer could be obviated or an identification layer 44 could be provided, for example as shown in broken lines in Fig. 1 over the second layer 14. The identification layer 44 could include a pattern 46 e.g. the letters B+, as shown. The pattern 46 is formed of a material sensitive to UV light which becomes visible when UV light is shone thereon. This would provide suitable identification to the person receiving an article with the label 10 thereon that the label 10 is genuine.

Whilst endeavouring in the foregoing specification to draw attention to those features of the invention believed to be of particular importance it should be understood that the Applicant claims protection in respect of any patentable feature or combination of features hereinbefore referred to and/or shown in the drawings whether or not particular emphasis has been placed thereon.

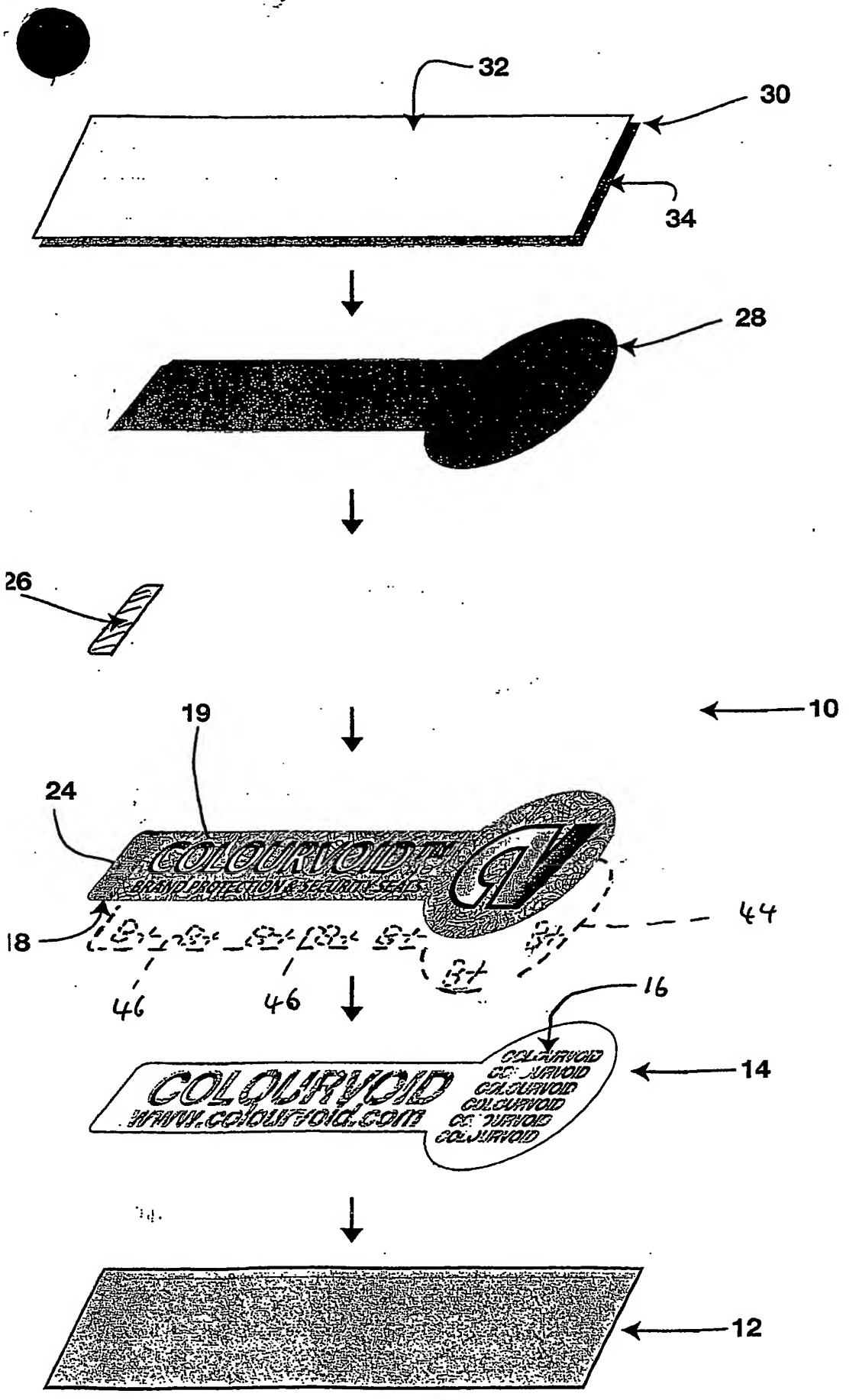
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Fig 1

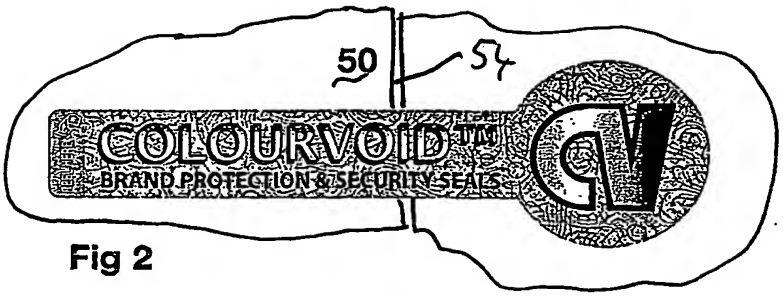


Fig 2

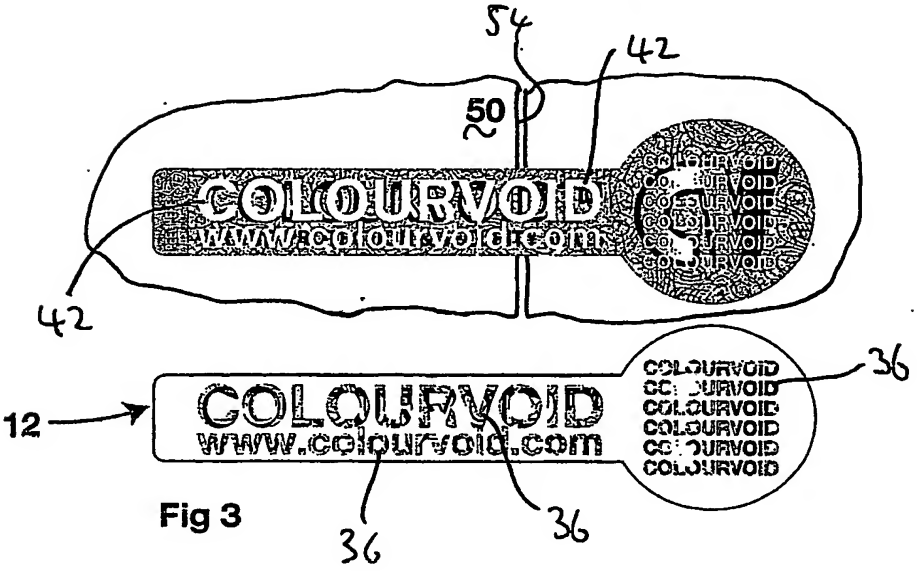


Fig 3

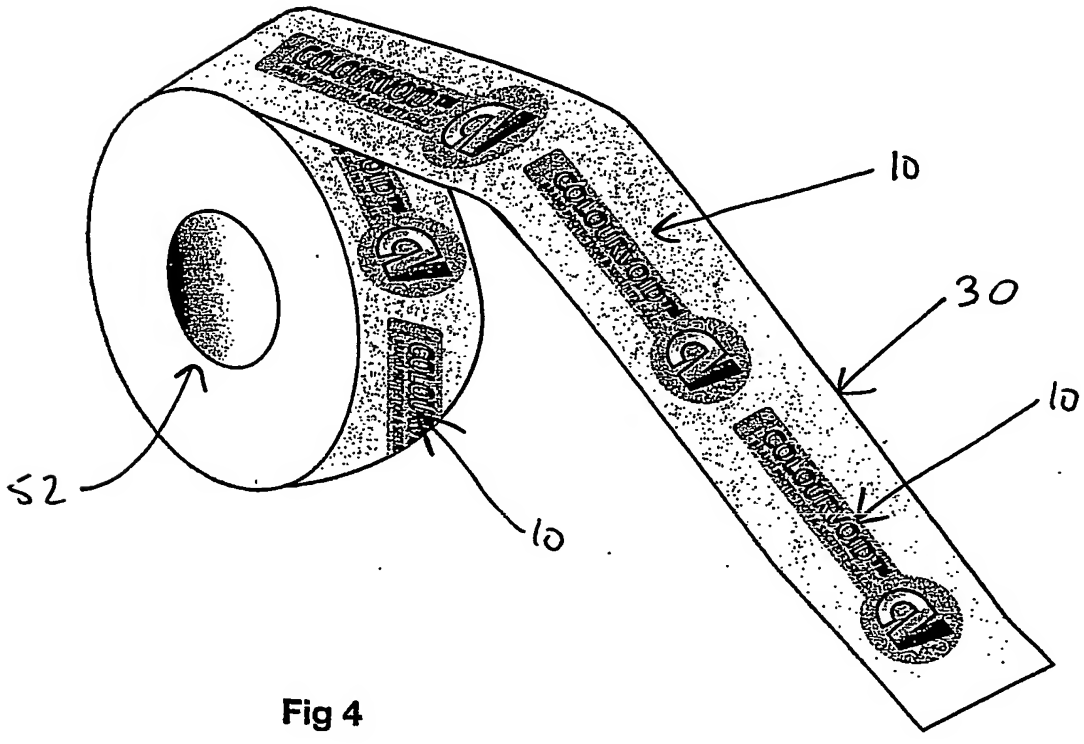


Fig 4